

b2 1. (Amended) A block copolymer characterized by the general formula  $(AB)_n$ -Core, where A and B are polymeric blocks and Core is a non-polymeric linking core; wherein said block copolymer comprises at least one random block comprised of two or more monomers, wherein at least one of said two or more monomers is hydrophilic and at least one of said two or more monomers is hydrophobic such that an absolute difference in log p between said at least one hydrophobic and hydrophilic monomers is at least about 0.5; and n is 2 or more; wherein the polymer comprises at least one monomer selected from the group consisting of acrylic acid, methacrylic acid, N,N-dimethylacrylamide, dimethyl aminoethyl methacrylate, quaternized dimethylaminoethyl methacrylate, methacrylamide, (2-methoxyethyl)acrylate, N-t-butyl acrylamide, maleic acid, maleic anhydride and its half esters, crotonic acid, itaconic acid, acrylamide, acrylate alcohols, hydroxyethyl methacrylate, diallyldimethyl ammonium chloride, vinyl ethers, maleimides, vinyl pyridine, vinyl imidazole, other polar vinyl heterocyclics, styrene sulfonate, allyl alcohol, vinyl alcohol, salts of any acids and amines listed above, and mixtures thereof; and provided that said block copolymer is soluble or miscible in water, methanol, ethanol or isopropanol or any combination thereof at a concentration of at least about 20 mg/mL at room temperature.

5. (Amended) The block copolymer of claim 1, wherein said linking core is selected from the group consisting of 4-arm, 6-arm, 8-arm and 12-arm moieties.

b3 6. (Amended) The block copolymer of claim 1, wherein a ratio of said two or more monomers in said random block is chosen such that an increase in the proportion of said at least one hydrophobic monomer results in a decrease in the solubility or dispersibility of the block copolymer in water, methanol, ethanol, isopropanol or a combination thereof.

7. (Amended) The block copolymer of claim 1, wherein a ratio of said two or more monomers in said random block is chosen such that a decrease in the proportion of said at least one

hydrophobic monomer results in an increase in the solubility or dispersibility of the block copolymer in water, methanol, ethanol, isopropanol or a combination thereof.

b3  
8. (Amended) A block copolymer that is at least soluble or miscible in water at a concentration of at least about 20 mg/mL, comprising a polymer having at least the structure A-B-A, where A and B are polymeric blocks, and wherein said polymer comprises at least one random block comprised of two or more monomers, provided that at least one of said two or more monomers in said random block is hydrophilic and at least one of said two or more monomers is hydrophobic, wherein the absolute difference in log p between the hydrophobic and hydrophilic monomers is at least about 0.5; wherein the polymer comprises at least one monomer selected from the group consisting of acrylic acid, methacrylic acid, N,N-dimethylacrylamide, dimethyl aminoethyl methacrylate, quaternized dimethylaminoethyl methacrylate, methacrylamide, (2-methoxyethyl)acrylate, N-t-butyl acrylamide, maleic acid, maleic anhydride and its half esters, crotonic acid, itaconic acid, acrylamide, acrylate alcohols, hydroxyethyl methacrylate, diallyldimethyl ammonium chloride, vinyl ethers, maleimides, vinyl pyridine, vinyl imidazole, other polar vinyl heterocyclics, styrene sulfonate, allyl alcohol, vinyl alcohol, salts of any acids and amines listed above, and mixtures thereof.

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11. (Amended) The block copolymer of claim 8, wherein a ratio of said two or more monomers in said random block is chosen such that an increase in the proportion of said at least one hydrophobic monomer results in a decrease in the hydrophilicity of the block copolymer.